LITTLE TURKEY LAKE

Steuben County

2008 Fish Management Report

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EXECUTIVE SUMMARY

- A general fisheries survey was conducted on Little Turkey Lake on June 16 through 20, 2008. Water chemistry and aquatic vegetation data were also collected.

- The Secchi disk reading at Little Turkey Lake during the general survey was 4 ft and dissolved oxygen concentrations were not adequate for fish survival below 11 ft. The Secchi disk reading during the plant survey was also 4 ft. Submersed vegetation was found to a maximum depth of 9 ft. Coontail was the most common submersed plant followed by curly-leaf pondweed and sago pondweed. Only seven species of submersed plants were collected during the survey. Curly-leaf pondweed is classified as an aquatic invasive species in Indiana.

- A total of 412 fish representing 13 species was collected during this survey. Bluegill ranked first by number, followed by largemouth bass and white sucker. Common carp was the dominant species collected by weight followed by white sucker and largemouth bass.

- Bluegill and largemouth bass dominated the sport fishery at Little Turkey Lake while black crappie and yellow perch contribute although they are present in small numbers.

- Bluegill of all ages grew at an average rate for northern Indiana natural lakes while largemouth bass grew at an above average rate.

- No fish management is recommended at Little Turkey Lake at this time.

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INTRODUCTION

Little Turkey Lake is a 58-acre natural lake located approximately one mile west of Hudson, Indiana in Steuben County. It has a maximum depth of 30 feet and an average depth of 13.7 feet. The lake has three inlets, Smathers Ditch, Conrad Ditch and an unnamed ditch. Both Smathers Ditch, which is the main inlet, and Conrad Ditch enter Little Turkey Lake on the east shore while the unnamed ditch enters on the south shore. Turkey Creek is the outlet for Little Turkey Lake. It is located in the northwest corner of the lake and flows northwest into Lime Kiln Lake. There is a state owned access site with a concrete boat ramp located on the northeast corner of the lake which is accessible off of County Road 700 South.

The majority of the shoreline of Little Turkey Lake consists of woods. There are two homes on the lake but the property owners have done little to alter the natural shoreline. Pasture and croplands are present but are buffered from the lake by wooded strips.

The initial fisheries survey of Little Turkey Lake was conducted in 1974 by Division of Fish and Wildlife (DFW) biologists. The purpose of this survey was to evaluate the quality of the sport fishery. The major sport species collected included bluegill, black crappie, yellow perch and largemouth bass (Table 1). The Little Turkey Lake fishery was considered satisfactory and no management was recommended. Additional fisheries surveys were conducted in 1979 and 1989. No significant changes were noted in the fishery. The current survey was conducted to evaluate the present condition of the fish population.

METHODS

This survey was conducted from June 16 through 20, 2008 as part of DFW Work Plan 300FW1F10D40621 that covers management of fish populations in natural lakes. Several physical and chemical characteristics of the water were measured in the deepest area of the lake according to the Manual of Fisheries Survey Methods (2001) standard lake survey guidelines. Submersed aquatic vegetation was sampled on July 16, 2008 using methods outlined in the Tier II Aquatic Vegetation Survey Protocol developed by the DFW Lake and River Enhancement Program and used in their aquatic vegetation control grant program. A global positioning system (GPS) device was used to record the location of the limnological data collection site, aquatic vegetation sample sites, and fish collection sites.

Fish were collected by pulsed D.C. electrofishing the shoreline at night with two dippers for one hour. Two experimental-mesh gill nets were also fished overnight for four nights while one trap net was fished overnight for three nights. All fish collected were measured to the nearest 0.1 in TL. Length-frequency tables were constructed for species of concern with whole inch groups consisting of individuals measuring from X.0 to X.4 in TL and half inch groups consisting of individuals measuring from X.5 to X.9 in TL. Length-weight regression equations for Fish Management District 2 were used to estimate the weight of all fish within the sample. Five scale samples per half-inch group were collected from game species for age and growth analysis. Length-at-age for these species was estimated using scale analysis (DeVries and Frie 1996). Age length keys were also constructed to determine mean length at age at the time of collection.

RESULTS

The Secchi disk reading at Little Turkey Lake was 4 ft and dissolved oxygen concentrations were not adequate for fish survival below 11 ft. Forty sites were randomly sampled during the plant survey, 28 of which fell within the littoral zone in water 9 ft in depth or less. The Secchi disk reading at the time of plant sampling was also 4 ft. A total of six native and one exotic species were identified. Aquatic plants were observed at 20 of the 28 littoral sites sampled. The maximum number of plant species found at one site was five and the mean was one. Coontail was the dominant plant collected followed by curly-leaf pondweed and sago pondweed. Five emergent, floating or floating leaf plants associated with wetlands, cattail, hardstem bulrush, pickerelweed, spatterdock and white water lily, were also observed. Curly-leaf pondweed is considered an invasive species and was not found in any of the prior surveys of Little Turkey Lake. Although it was present at 35% of the littoral sites, the overall abundance was low. With the exception of two small areas on the east and west end of the lake, the littoral zone in Little Turkey Lake is relatively narrow. This serves to restrict plant distribution and abundance.

A total of 412 fish representing 13 species was collected from Little Turkey Lake in 2008. Numerically, bluegill was the top species collected (39%) followed by largemouth bass (19%), white sucker (14%) and golden shiner (12%). Common carp was the dominant species collected by weight (26%) followed by white sucker (23%), largemouth bass (19%) and spotted

gar (17%).

Bluegill ranked first by number (39%) and fifth by weight (9%) among all species collected during this survey. The 161 bluegills collected ranged in length from 2.0 (age 1) to 8.1 (age 6) in TL and averaged 5.6 in TL. They weighed approximately 26.3 pounds. During electrofishing bluegills were collected at a rate of 128 fish per hour. Three bluegills per lift were collected during gill netting, while trap netting yielded two bluegills per lift. Bluegills 6.0-in TL or larger, considered harvestable size, comprised 44% of the sample, reaching this size during their third or fourth year of life. All age groups of bluegills grew at an average rate for northern Indiana natural lakes. Bluegill was also the top species collected numerically in all of the preceding surveys. The percentage of harvestable size bluegills collected ranged from 50% to 61% in these surveys.

A total of 77 largemouth bass weighing approximately 58 pounds was collected. Largemouth bass ranked second by number (19%) and third by weight (19%) among all species collected. They ranged in length from 5.5 (age 2) to 18.5 (age 6) in TL and averaged 10.8 in TL. Harvestable size largemouth bass (14 in TL or larger) comprised 17% of the sample. Bass reached this size during their fourth year of life. Largemouth bass grew at an above average rate for northern Indiana natural lakes. Electrofishing yielded a catch of 60 bass per hour. Gill netting yielded two per lift while only one bass was caught during trap netting. In previous surveys, largemouth bass ranged from 5% to 7% of the total fish sample and 12% to 17% of these have been harvestable size. Only five bass measuring 18 in TL or larger have been collected during fisheries surveys of Little Turkey Lake beginning with the first survey in 1974.

Two other sport species were collected during the current survey, black crappie and yellow perch, the largest of which measured 9.1 and 10.0 in TL respectively. Neither was collected in large numbers as only 13 crappies and 4 perch were sampled. Larger numbers of these two species have been collected in prior years as 178 crappies were collected in 1979 and 95 perch were collected in both the 1979 and 1989 surveys.

DISCUSSION

Little Turkey Lake's sport fish population is dominated by bluegills and largemouth bass. Approximately 57% of the fish sample was comprised of these two species numerically and they represented 28% of the sample by weight. While no extremely large bluegills or bass were

collected during this survey, good numbers of these were present in sizes that would be attractive to anglers. Additional sport species collected included black crappie and yellow perch. Although they were not captured in large numbers, their presence in the fishery offers anglers other opportunities.

All ages of bluegill grew at an average rate for northern Indiana natural lakes, similar to the growth observed in the previous fisheries surveys.

Harvestable size bluegills still comprise an acceptable percentage of the population and are at a level close to what was observed in 1979 and 1989. The highest abundance of harvestable size bluegills in the sample occurred in 1974; however the decline since then has been marginal. While fish over 8 in TL were not abundant, bluegill fishing at Little Turkey Lake is still considered good.

Largemouth bass are present in good numbers in Little Turkey Lake and a sufficient number of legal size bass are present to attract anglers. The percentage of harvestable size bass has fluctuated between 12% and 17% in alternating surveys. One change in the bass population to be noted is the fact that bass are now growing at an above average rate for natural lakes in Indiana. It is anticipated that this increase in growth should result in the presence of more harvestable size bass in the lake in the future.

Aquatic vegetation in Little Turkey Lake is restricted to a relatively narrow band circling the lake, with the exception of shallow bays on the east and west ends of the lake. This results in minimal interference with angling activities over a vast majority of the lake. One aquatic invasive species, curly-leaf pondweed, was collected at Little Turkey Lake. Although it currently is not a nuisance, its abundance should be monitored. If this exotic pondweed does become a problem, funding or even cost sharing a lake wide control program through the Lake and River Enhancement program would be challenging for the relative few lakefront residents.

The water quality at Little Turkey Lake is considered fair. Nutrients are most likely carried into the lake via the drainage ditches that serve as inlets to the lake. These ditches flow through agricultural areas and are susceptible to collecting runoff from these fields. These nutrient loads are in all probability contributing to the level of planktonic algae in the lake which lowers water clarity and gives the water its green appearance. Good conservation practices in the watershed could help lower the nutrient runoff into the ditches.

Black spot disease was noticed in several of the yellow perch collected during the survey. This is caused by a parasitic fluke which burrows under the fishes skin. A black pigment then forms in the tissue surrounding the fluke. This parasite, while unsightly, is not harmful to humans if consumed. Shoreline erosion was minimal.

RECOMMENDATIONS

- The DFW should encourage and support the Steuben County Soil and Water Conservation District and the Steuben County Surveyors Office in their efforts to implement erosion control projects in the Little Turkey Lake watershed which should result in improved water quality in the lake.

- No fish management is recommended for Little Turkey Lake at this time.

LITERATURE CITED

DeVries, D. R. and R.V. Frie. 1996. Determination of Age and Growth. Pages 483-512 *in* B. R. Murphy and D. W. Willis, editors. Fisheries techniques, 2nd edition. American Fisheries Society, Bethesda, Maryland.

Submitted by: Larry A. Koza, Assistant Fisheries Biologist
Date: 12/19/08

Approved by: Stuart Shipman
North Region Fisheries Supervisor
Date: 1/22/09

Table 1. Sampling effort, species composition and relative abundance of fish collected during the 1974, 1979, 1989 and 2008 fisheries surveys of Little Turkey Lake.

Species	1974	1979	1989	2008
Black bullhead		1	4	
Black crappie	17	178	48	13
Bluegill	346	345	261	161
Bowfin	11	3	4	
Brown bullhead	3	8		1
Common carp	3	7	4	10
Common shiner				1
Golden shiner	224	67	55	50
Green sunfish	1	2	1	
Hybrid sunfish			3	
Lake chubsucker	5	58	9	
Largemouth bass	40	58	48	77
Northern hogsucker	1			
Northern pike		2	3	
Pumpkinseed	17	129	19	2
Redfin pickerel	1	1		
Redear	1		1	
Spotted gar	16	6	16	27
Warmouth	15	42	11	1
White crappie		10	34	
White sucker	20	59	28	57
Yellow bullhead	8	4	9	8
Yellow perch	9	95	95	4
Total	738	1,075	653	412
Sampling Effort				
Electrofishing Effort	1.0 h AC	1.0 h DC	1.0 h DC	1.0 h DC
Gill Net Effort	9 lifts	12 lifts	9 lifts	8 lifts
Trap Net Effort	0 lifts	12 lifts	6 lifts	3 lifts

Table 2. Relative abundance by select size ranges for bluegill and largemouth bass collected during the 1974, 1979, 1989 and 2008 fisheries surveys of Little Turkey Lake.

Species	Length Range (TL)	1974	1997	1989	2008
Bluegill	3.0-5.5 in	133	185	130	78
	6.0-6.5 in	111	35	81	35
	7.0-7.5 in	89	80	49	33
	$\geq$ 8.0 in	11	45		3
Largemouth bass	8.0-9.5 in	20	7	12	29
	10.0-11.5 in	5	7	8	19
	12.0-13.5 in	1	13	3	11
	14.0-17.5 in	5	8	4	12
	$\geq$ 18.0 in		2	2	1

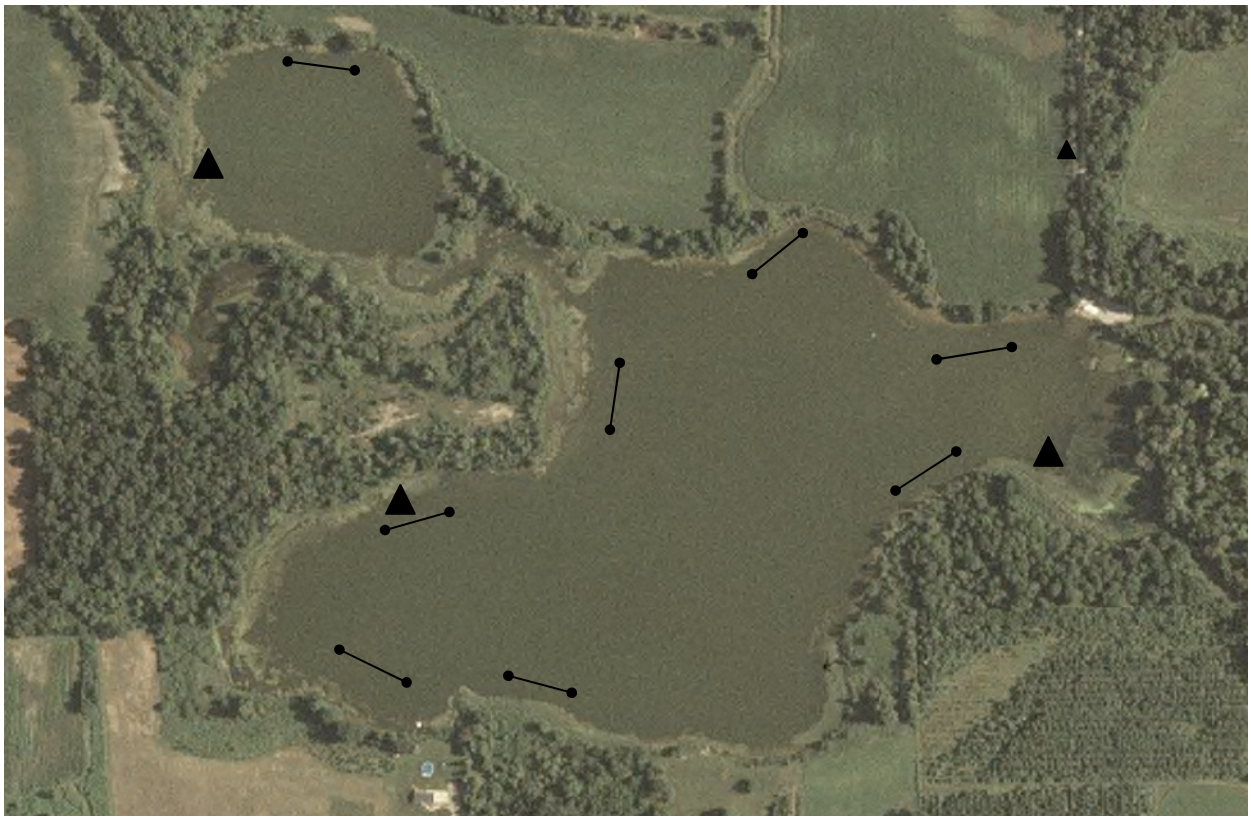

Figure 1. Aerial photo of Little Turkey Lake with sample locations.

APPENDIX 1. Survey data pages

LAKE SURVEY REPORT

Type of Survey: [ ] Initial Survey [X] Re-Survey

Lake Name	County	Date of survey (Month, day, year)
Little Turkey Lake	Steuben	June 16-20, 2008
Biologist's name		**Date of approval (Month, day, year)**
Neil D. Ledet and Larry A. Koza		January 22, 2009

LOCATION

Quadrangle Name	Range	Section
Ashley	12E	35
Township Name	**Nearest Town**	
36N	1/5 miles west of Hudson, Indiana	

ACCESSIBILITY

State owned public access site	Privately owned public access site	Other access site
Located off of County Road 700S		

Surface acres	Maximum depth	Average depth	Acre feet	Water level	Extreme fluctuations
58	30	13.7	799	939.04 MSL	

Location of benchmark

INLETS

Name	Location	Origin
Smathers Ditch	East	Drainage
Conrad Ditch	East	Drainage
Unnamed	South	Drainage

OUTLETS

Name	Location
Turkey Creek	Northwest into Limekiln Lake

Water level control: None

POOL	ELEVATION (Feet MSL)	ACRES
TOP OF DAM		
TOP OF FLOOD CONTROL POOL		
TOP OF CONSERVATION POOL		
TOP OF MINIMUM POOL		
STREAMBED		

Bottom type

- [ ] Boulder
- [ ] Gravel
- [X] Sand
- [ ] Muck
- [ ] Clay
- [X] Marl

Watershed use: General farming

Development of shoreline: Approximately 3% of the shoreline is developed residentially.

Previous surveys and investigations: USGS Hydrographic Survey, 1962. IDNR Fisheries Surveys: Peterson, 1974, 1979; Ledet, 1989.

SAMPLING EFFORT					
ELECTROFISHING	Day hours		Night hours 1		Total hours 1
TRAP NETS	Number of traps 1		Number of Lifts 3		Total effort 3
GILL NETS	Number of nets 2		Number of Lifts 4		Total effort 8
ROTENONE	Gallons	ppm	Acre Feet Treated	SHORELINE SEINING	Number of 100 Foot Seine Hauls

PHYSICAL AND CHEMICAL CHARACTERISTICS	
Color: Green	Turbidity: 4 Feet 0 Inches (SECCHI DISK)
Alkalinity (ppm)*: Surface: 171.6 Bottom: 223.1	pH: Surface: 9.3 Bottom: 8.7
Conductivity: 590 micromhos	Air temperature: ℉
Water chemistry GPS coordinates: N 41.53496	W 85.10748

TEMPERATURE AND DISSOLVED OXYGEN (D.O.)								
DEPTH (FEET)	Degrees (℉)	D.O. (ppm)	DEPTH (FEET)	DEGREES (℉)	D.O. (ppm)	DEPTH (FEET)	DEGREES (℉)	D.O. (ppm)
SURFACE	76.2	11.9	36			72		
2	76.1	11.8	38			74		
4	76.1	11.8	40			76		
6	76.1	11.7	42			78		
8	76.0	11.6	44			80		
10	70.1	9.0	46			82		
12	63.8	2.4	48			84		
14	59.4	0.6	50			86		
16	55.4	0.6	52			88		
18	53.2	0.5	54			90		
20	52.0	0.5	56			92		
22	50.8	0.5	58			94		
24	50.3	0.5	60			96		
26	49.5	0.5	62			98		
28	49.4	0.4	64			100		
30	49.4	0.4	66					
32			68					
34			70					

COMMENTS

*ppm-parts per million

SPECIES AND RELATIVE ABUNDANCE OF FISHES COLLECTED BY NUMBER AND WEIGHT					
*COMMON NAME OF FISH	NUMBER	PERCENT	LENGTH RANGE (inches)	WEIGHT (pounds)	PERCENT
Bluegill	161	39.1	2.0 - 8.1	26.63	8.7
Largemouth bass	77	18.7	5.5 - 18.5	58.30	19.1
White sucker	57	13.8	8.9 - 19.8	70.43	23.0
Golden shiner	50	12.1	6.4 - 9.5	8.11	2.7
Spotted gar	27	6.6	18.4 - 30.4	50.86	16.6
Black crappie	13	3.2	7.0 - 9.1	3.62	1.2
Common carp	10	2.4	20.6 - 29.5	79.78	26.1
Yellow bullhead	8	1.9	9.6 - 12.5	5.21	1.7
Yellow perch	4	1.0	6.7 - 10.1	1.25	0.4
Pumpkinseed	2	0.5	5.8 - 6.6	0.36	0.1
Brown bullhead	1	0.2	13.7	1.06	0.3
Common shiner	1	0.2	6.3	0.08	**
Warmouth	1	0.2	4.3	0.06	**
Total (13 Species)	412			305.75	

*Common names of fishes recognized by the American Fisheries Society.

**Less than 0.1 percent

NUMBER, PERCENTAGE, WEIGHT, AND AGE OF BLUEGILL									
TOTAL LENGTH (inches)	NUMBER COLLECTED	PERCENT OF FISH COLLECTED	AVERAGE WEIGHT (pounds)	AGE OF FISH	TOTAL LENGTH (inches)	NUMBER COLLECTED	PERCENT OF FISH COLLECTED	AVERAGE WEIGHT (pounds)	AGE OF FISH
1.0					19.0				
1.5					19.5				
2.0	7	4.3	0.01	1	20.0				
2.5	5	3.1	0.01	1	20.5				
3.0					21.0				
3.5	1	0.6	0.04	2	21.5				
4.0	5	3.1	0.06	2, 3	22.0				
4.5	10	6.2	0.08	3	22.5				
5.0	34	21.1	0.11	3, 4	23.0				
5.5	28	17.4	0.14	3	23.5				
6.0	18	11.2	0.17	3, 4	24.0				
6.5	17	10.6	0.22	4, 5	24.5				
7.0	24	14.9	0.29	5, 6	25.0				
7.5	9	5.6	0.33	5, 6	25.5				
8.0	3	1.9	0.40	6	26.0				
8.5					TOTAL	161			
9.0									
9.5									
10.0									
10.5									
11.0									
11.5									
12.0									
12.5									
13.0									
13.5									
14.0									
14.5									
15.0									
15.5									
16.0									
16.5									
17.0									
17.5									
18.0									
18.5									

ELECTROFISHING CATCH	128 /hr	GILL NET CATCH	3.3 /lift	TRAP NET CATCH	2.3 /lift

AGE-LENGTH KEY FOR BLUEGILL													
LENGTH GROUP (inches)	NUMBER COLLECTED	NUMBER AGED	AGE										
			1	2	3	4	5	6	7	8	9	10	11	12
1.0														
1.5														
2.0	7	3	7											
2.5	5	4	5											
3.0														
3.5	1	1		1										
4.0	5	4		3	2									
4.5	10	5			10									
5.0	34	5			20	14								
5.5	28	5			28									
6.0	18	5			14	4								
6.5	17	4				8	9							
7.0	24	7					14	10						
7.5	9	4					4	5						
8.0	3	2						3						
Total	161	49	12	4	74	26	27	18						
Mean TL			2.5	4.1	5.5	5.9	7.2	7.5						
SE			0.07	0.14	0.06	0.14	0.07	0.09						

NUMBER, PERCENTAGE, WEIGHT, AND AGE OF LARGEMOUTH BASS									
TOTAL LENGTH (inches)	NUMBER COLLECTED	PERCENT OF FISH COLLECTED	AVERAGE WEIGHT (pounds)	AGE OF FISH	TOTAL LENGTH (inches)	NUMBER COLLECTED	PERCENT OF FISH COLLECTED	AVERAGE WEIGHT (pounds)	AGE OF FISH
1.0					19.0				
1.5					19.5				
2.0					20.0				
2.5					20.5				
3.0					21.0				
3.5					21.5				
4.0					22.0				
4.5					22.5				
5.0					23.0				
5.5	1	1.3	0.08	2	23.5				
6.0	1	1.3	0.12	2	24.0				
6.5	1	1.3	0.16	2	24.5				
7.0	1	1.3	0.18	2	25.0				
7.5	1	1.3	0.22	2	25.5				
8.0	2	2.6	0.27	2	26.0				
8.5	4	5.2	0.32	2	TOTAL	77			
9.0	13	16.9	0.38	2					
9.5	10	13.0	0.45	2					
10.0	9	11.7	0.53	2, 3					
10.5	4	5.2	0.60	2, 3					
11.0	3	3.9	0.66	2, 3					
11.5	3	3.9	0.81	4					
12.0	5	6.5	0.90	3					
12.5	4	5.2	0.25	2, 3, 4					
13.0	1	1.3	1.12	3					
13.5	1	1.3	1.31	3					
14.0	1	1.3	1.46	4					
14.5	4	5.2	1.63	3, 4					
15.0	1	1.3	1.83	4					
15.5	1	1.3	1.94	5					
16.0									
16.5	3	3.9	2.29	5					
17.0	2	2.6	2.52	5, 6					
17.5									
18.0									
18.5	1	1.3	3.21	6					

ELECTROFISHING CATCH	60 /hr	GILL NET CATCH	2 /lift	TRAP NET CATCH	0.3 /lift

AGE-LENGTH KEY FOR LARGEMOUTH BASS														
LENGTH GROUP (inches)	NUMBER COLLECTED	NUMBER AGED	AGE											
			1	2	3	4	5	6	7	8	9	10	11	12
5.5	1	1		1										
6.0	1	1		1										
6.5	1	1		1										
7.0	1	1		1										
7.5	1	1		1										
8.0	2	2		2										
8.5	4	4		4										
9.0	13	12		13										
9.5	10	10		10										
10.0	9	9		8	1									
10.5	4	4		2	2									
11.0	3	3		2	1									
11.5	3	2				3								
12.0	5	4			5									
12.5	4	3		1	2	1								
13.0	1	1			1									
13.5	1	1			1									
14.0	1	1				1								
14.5	4	4			2	2								
15.0	1	1				1								
15.5	1	1					1							
16.0														
16.5	3	3					3							
17.0	2	2					1	1						
17.5														
18.0														
18.5	1	1						1						
Total	77	73		47	15	8	5	2						
Mean TL				9.4	12.4	13.4	16.7	18.0						
SE				0.18	0.36	0.52	0.24	0.75						

GPS SAMPLING COORDINATES												
GILL NETS					TRAP NETS					ELECTROFISHING		
1	N	41.53698	W	85.10762	1	N	41.53524	W	85.11123	1	N	W
	N		W		2	N	41.53740	W	85.11348		N	W
2	N	41.53358	W	85.11025	3	N	41.53510	W	85.10471	2	N	W
	N		W		4	N		W			N	W
3	N	41.53600	W	85.10949	5	N		W		3	N	W
	N		W		6	N		W			N	W
4	N	41.53378	W	85.11213	7	N		W		4	N	W
	N		W		8	N		W			N	W
5	N	41.53521	W	85.10593	9	N		W		5	N	W
	N		W		10	N		W			N	W
6	N	41.53826	W	85.11198	11	N		W		6	N	W
	N		W		12	N		W			N	W
7	N	41.53611	W	85.10589	13	N		W		7	N	W
	N		W		14	N		W			N	W
8	N	41.53495	W	85.11133	15	N		W		8	N	W
	N		W		16	N		W			N	W
9	N		W		17	N		W		9	N	W
	N		W		18	N		W			N	W
10	N		W		19	N		W		10	N	W
	N		W		20	N		W			N	W
11	N		W							11	N	W
	N		W								N	W
12	N		W							12	N	W
	N		W								N	W
13	N		W							13	N	W
	N		W								N	W
14	N		W							14	N	W
	N		W								N	W
15	N		W							15	N	W
	N		W								N	W
16	N		W							16	N	W
	N		W								N	W
17	N		W							17	N	W
	N		W								N	W
18	N		W							18	N	W
	N		W								N	W
19	N		W							19	N	W
	N		W								N	W
20	N		W							20	N	W
	N		W								N	W

Occurrence and Abundance of Submersed Aquatic Plants

Lake:	Little Turkey Lake	Secchi(ft):	4.0	SE Mean species / site:	0.25
Date:	7/16/2008	Littoral sites with plants:	20	Mean natives / site:	0.93
Littoral Depth (ft):	9.0	Number of species:	7	SE Mean natives / site:	0.19
Littoral Sites:	28	Maximum species / site:	5	Species diversity:	0.76
Total Sites:	40	Mean species / site:	1.28	Native diversity:	0.68

	Frequency of	Score Frequency				
Species	**Occurrence**	**0**	**1**	**3**	**5**	**Dominance**
Coontail	42.5	57.5	22.5	7.5	12.5	21.5
Curly-leaf pondweed	35.0	65.0	30.0	5.0	0.0	9.0
Sago pondweed	27.5	72.5	10.0	2.5	15.0	18.5
Large-leaf pondweed	10.0	90.0	10.0			2.0
Water stargrass	7.5	92.5	7.5			1.5
Elodea	2.5	97.5	2.5			0.5
Slender naiad	2.5	97.5	2.5			0.5

Other species noted: Cattail, spatterdock, pickerelweed, hardstem bulrush and white waterlily